

## Chapter 3

### Laws and Regulations Affecting Disposal of Low-Level Radioactive Waste and Mixed Waste

#### 3-1. Introduction

Federal agencies and personnel must comply with all regulations to the same extent as private industry and private citizens. Table 3-1 lists the important statutes and executive orders affecting radioactive waste. Table 3-2 lists the important regulations. Relevant laws and regulations are discussed in detail in EM 1110-35-1.

#### 3-2. Importance and Applicability

Use of radioactive materials is one of the most complex and regulated industries in the United States. When radioactive wastes and other types of hazardous wastes occur together as mixed wastes, the complexity of the problems and the regulations increase enormously. However, it is vital that all personnel working on any aspect of planning, design, or operation of a waste cleanup project that involves radioactive waste be familiar with all

of the basic requirements of that part of the process. Failure to do so can easily cause serious conflicts with regulatory agencies that might result in significant delays, monetary penalties, including civil penalties and, ultimately, criminal prosecution and criminal fines for the most serious violations.

#### 3-3. Additional Information Sources

One of the best sources of information for personnel dealing with projects involving low-level wastes, in addition to the laws and regulations themselves, is the Environmental Guidance Program Reference Books prepared for the Assistant Secretary of the U.S. Department of Energy for Environment, Safety, and Health by the Oak Ridge National Laboratory. They emphasize aspects of the laws and regulations that affect the DOE. They are available, for DOE personnel and contractors, from the DOE Office of Environmental Guidance in Washington, DC. They are extremely useful, and they, or other comparable sources of information, should be available in every office working on a project involving radioactive wastes. These books, as well as the Code of Federal Regulations, contain the complete regulations. The regulations themselves, not just a summary, should be read and studied carefully before beginning work on a project.

Table 3-1  
Statutory Authorities for Radiation Protection

#### LEGISLATION OR EXECUTIVE ORDER

**EXECUTIVE ORDER 10831:** Executive Order 10831 charges the Administrator of the Environmental Protection Agency to "... advise the President with respect to radiation matters, indirectly affecting health, including guidance for all Federal agencies in the formulation of radiation standards and in the establishment and execution of programs of cooperation with States. " EPA issues its Federal radiation guidance under the Order.

**ATOMIC ENERGY ACT, AS AMENDED (AEA):** The AEA requires the management, processing, and utilization of radioactive materials in a manner that protects public health and the environment. Reorganization Plan No. 3 of 1970 transferred to EPA responsibility for promulgating generally applicable radiation protection standards.

**COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT (CERCLA):** CERCLA, as amended, authorizes EPA to act, consistent with the national contingency plan, to provide for remedial action in response to releases or substantial threats of releases of hazardous substances into the environment. Hazardous substances are defined as any substance designated or listed under the Clean Air Act, the Federal Water Pollution Control Act, the Toxic Substances Control Act, and the Resource Conservation and Recovery Act. Because the CAA designated radionuclides as a hazardous air pollutant, the provisions of CERCLA apply to radionuclides.

**TOXIC SUBSTANCES CONTROL ACT (TSCA):** TSCA regulates the manufacture, distribution in commerce, processing, use, and disposal of chemical substances and mixtures. Materials covered by the AEA are expressly excluded from TSCA. However, naturally-occurring and accelerator produced radionuclides are not.

**RESOURCES CONSERVATION AND RECOVERY ACT (RCRA):** RCRA provides for detailed regulation of hazardous waste from generation to final disposal. Hazardous waste generators and transporters must comply with EPA standards. Owners and operators of treatment, storage, or disposal facilities must obtain RCRA permits. AEA materials are expressly excluded from the definition of solid waste, and thus from regulation under RCRA. Naturally occurring and accelerator produced radioactive materials, however, are not.

**FEDERAL WATER POLLUTION CONTROL ACT (FWPCA):** FWPCA protects the nation's water quality, chiefly through the use of technology-based effluent limits; the national pollutant discharge elimination system (NPDES) permitting system; pretreatment requirements for industrial discharges; and toxicity based water quality standards. A 1976 Supreme Court opinion held that source, special nuclear, and byproduct material are not subject to the Act. [Other radionuclides would seem to be included inasmuch as radionuclides can be defined as a pollutant. ]

**CLEAN AIR ACT (CAA):** CAA protects and enhances the nation's air quality through national ambient air quality standards, new source performance standards, and other provisions. Radionuclides are a hazardous air pollutant regulated under Section 112 of the Act.

**LOW LEVEL RADIOACTIVE WASTES POLICY ACT, AS AMENDED (LLRWPA):** LLRWPA assigns States responsibility for ensuring adequate disposal capacity for low-level radioactive wastes generated within their borders.

**Table 3-2**  
**Examples of Federal Regulatory Controls**

Regulations	Authorizing Statute	Applicability	Standard	Other Applications
EPA REGULATIONS				
40 CFR-61- National Emission Standards for Hazardous Air Pollutants: Standards for Radionuclides	CAA	Emission standards for eight categories of facilities	10 mrem/yr	Used as an applicable or relevant and appropriate requirement (ARAR) at WPL sites
40 CFR-268-Land Disposal Restrictions	RCRA	Identifies hazardous wastes restricted from land disposal and defines variances to prohibitions	No radioactive waste exception, variance	Describes hazardous waste land disposal restrictions
40 CFR 300- National Contingency Plan (NCP) Supporting Guidance	CERCLA	Organizational structure and procedures for preparing for and responding to discharges of oil and releases of hazardous substances, pollutants, and contaminants	Acceptable risk range of 10 <sup>6</sup> to 10 <sup>7</sup>	Establishes criteria for selecting remediation and goals at national priorities list (NPL) sites
NRC REGULATIONS				
10 CFR 20- Standards for Protection Against Radiation	AEA	Radiation protection criteria for NC licensed activities	100 mrem/yr, plus ALARA ("AS Low as Reasonably Achievable")	State regulations
10 CFR 61- Licensing Requirements for Land Disposal of Radioactive Waste	AEA	Procedures, criteria, and terms and conditions that apply to the issuing of licenses for the land disposal of radioactive waste produced by NRC licenses	25 mrem/yr, plus ALARA	
PRINCIPAL DOE ORDERS AND REGULATIONS				
DOE Order 5400.4- Comprehensive Environmental Response, Compensation and Liability Act Requirements	AEA	DOE CERCLA policies and procedures as prescribed by the NCP	Acceptable risk range of 10 <sup>6</sup> to 10 <sup>7</sup>	Could be used to establish criteria for selecting remediation goals at other sites
DOE Order 5400.5- Radiation Protection of the Public Environment	AEA	Standards and requirements for operations of DOE and DOE contractors with respect to protection of the public and the environment against undue risk from radiation	100 mrem/yr, plus ALARA	Could be used to set site-specific cleanup goals at other sites
Proposed 10 CFR 834- (Notice of Proposed Rulemaking, 58FR 16268)- Radiation Protection of the Public and Environment	AEA	Proposed standards and requirements for operations of DOE and DOE contractors with respect to protection of the public and the environment against undue risk from radiation	100 mrem/yr, plus ALARA	Could be used to set site-specific cleanup goals at other sites